

For 1-9, solve the equations by hand.

1.  $\log x = 4$

2.  $\log_2 x = 5$

3.  $\log_4(1 - x) = 1$

4.  $\log_3(x - 5) = -1$

5.  $2\log_5 x = \log_5 9$

6.  $\log_4(x + 3) + \log_4(2 - x) = 1$

7.  $3\log_2 x = -\log_2 27$

8.  $\log_3(x-1)^2 = 2$

9.  $2\log_3(x + 4) - \log_3 9 = 2$

For 10-12, solve each equation and round answers to the nearest hundredth if needed.

10.  $\ln x = 4$

11.  $\ln(x+1) + \ln(x-1) = 4$

12. Use your graphing  
calculator to solve.  
 $\ln x = -x$

\*13.  $8^{x^2-2x} = \frac{1}{2}$

\*14.  $2^{2x} + 2^x - 12 = 0$

\*15.  $5^{1-2x} = \frac{1}{5}$

\*16. Graph:  $f(x) = 2 \cdot 3^{2x-6} + 1$

Parent function \_\_\_\_\_

| x | y |
|---|---|
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |

Description of transformation

| x | y |
|---|---|
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |

y-int \_\_\_\_\_ asymptote \_\_\_\_\_

Domain \_\_\_\_\_

Range \_\_\_\_\_

\*17. Graph:  $f(x) = -\log_3(x+1) - 4$

Parent function \_\_\_\_\_

| x | y |
|---|---|
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |

Description of transformation

| x | y |
|---|---|
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |

y-int \_\_\_\_\_ asymptote \_\_\_\_\_

Domain \_\_\_\_\_

Range \_\_\_\_\_

